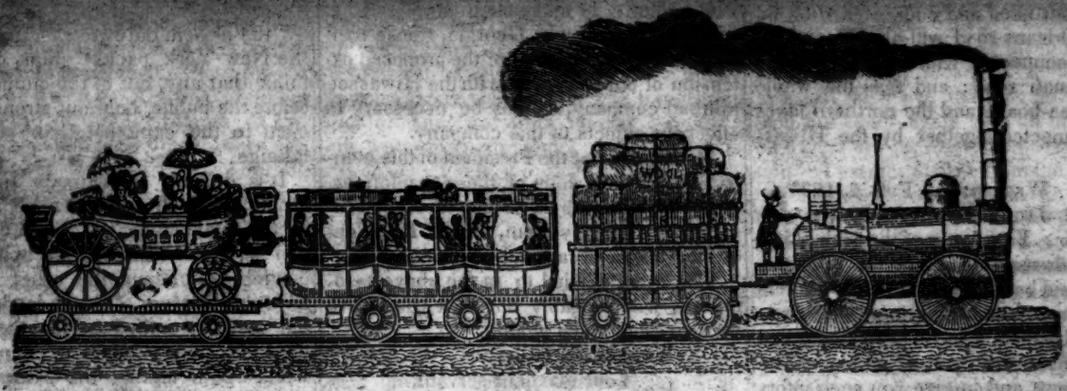

AMERICAN RAILROAD JOURNAL,
AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT NO. 30 WALL STREET, NEW-YORK, AT FIVE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, and GEORGE C. SCHAEFFER, } EDITORS AND PROPRIETORS.

SATURDAY, MAY 6, 1837. VOLUME VI—No. 18.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, MAY 6, 1837.

REMOVAL.—The Office of the RAILROAD JOURNAL, NEW-YORK FARMER, and MECHANIC'S MAGAZINE, is removed to No. 30 WALL-STREET, *basement story*, one door from William-street, and *opposite the Bank of America*.

☞ SUBSCRIBERS IN THIS CITY, who change their residence on the 1st of May, will please give notice at the office, 30 Wall-street, *Basement Story*. It is desirable that the notice should specify their late and future residence.

The following notice has been accidentally overlooked by us, until this time, therefore, ask for it particular attention.

NORWICH AND WORCESTER RAILROAD.

NOTICE to Contractors.—Sealed proposals will be received at the Office of the Norwich and Worcester Railroad Company, in Worcester, from the 1st to the 10th of May next, for the Grading and Masonry of the road from Worcester through the towns of Auburn, Oxford and Webster to the Connecticut State line—a distance of 18 miles.

The line will be ready for examination on the 1st of May, when Plans, Profiles, &c. may be seen at the Office in Worcester.

No ardent spirits to be used on the work.

Contractors are requested to present along with their proposals the usual certificates of character and ability.

JAMES LAURIE, Engineer.

Norwich, Conn. April 14, 1837. 1t—18

MACHINERY FOR PREPARING RAILROAD TIMBER.

We give publicity to the following communication, as the best mode of answering the desire of the writer.

PEMBROOKE, Genesee Co., April 27, 1837.

Messrs. Minor & Schaeffer.

Gentlemen—On perusing the Journal of 24th December last, I found some remarks of William Dewey, Esq., in his Report upon the Watertown and Cape Vincent Railroad, which drew my attention to the subject of Machinery for preparing timber for the foundation of Railroads.

Having some knowledge of Mechanics' as also of Engineering, I turned my attention to the subject during the past winter, and have constructed a model. The design of which is to be attached to a Locomotive, and placed on a section of the road finished for that purpose. A travel of 55 rods will transport, cut and prepare two sills, and four ties to be delivered to the workmen at the end of the track. And as the track is extended will prepare a large load of timber. The sills are straitened on one side, or split in the centre. Ties split or quartered as may be desired, and rails and ribing sawed of any size required.

The machine is extremely simple not likely to get out of repair. Requires but two hands to manage it, and may prepare a load of timber without stoping to shift the Logs. The cost of Machine will probably fall below $500.

I take the liberty of addressing you, gentleman, for the reason that I suppose it something likely that Mr. Dewey may not be in the city. You will oblige me therefore by communicating these lines to him, and as I am about to construct a full size machine under the patronage of the Buffalo and Batavia Railroad association. Mr. Dewey would oblige me much by giving it a personal examination when finished.

A communication from Mr. Dewey, would also be very acceptable.

Very respectfully,
Your obedient servant,
AMOS TYRELL, Jr.

From the Athens, (Tenn.) Journal.

HIWASSEE RAIL ROAD.

It will be seen by the subjoined letter, from the President of the Wetumpka and Coosa railroad, that that Company is anxious to connect their road with the Hiwassee road, which we have not a doubt will be effected in a few years. While on the one hand we are rejoiced to see a spirit of enterprise prevailing amongst our citizens, on the other we cannot help being astonished at finding some amongst us who yet remain so blind to their own interest, and the prosperity of East Tennessee, as to be guilty of throwing all the difficulties in the way of the improvement of their country that they are capable of.

In our view, the Hiwassee railroad will be the most grand and important link in all the railroads of the United States. In Virginia and North Carolina a number of railroads are constructing and in contemplation, which will be extended to the Tennessee line; and, finally, connected the great Charleston and Cicinnnati railroad; and in Georgia and Alabama a number are constructing, all converging to a point, or nearly so, near the line of our State, and all these roads, on the north, south, east and west will be connected together by the Hiwassee road. The Charleston and Cinnati road will ultimately be extended to the northern lakes, and numerous other roads from the interior of the whole north-west

will be constructed and connected with it; the New-Orleans road will also be extended to and connected with the Charleston and Cincinnati road; and thus the whole Atlantic sea-board and the northern lakes will be connected together by the Hiwassee road.

WETUMPKA, Feb. 6, 1837.

Gen. S. D. JACOBS,—

Dear Sir: Your letter of the 10th of last month, addressed to John D. Williams, Esq. was laid before the Board of Directors for the Wetumpka and Coosa railroad company, and by them I have been instructed to communicate with you as to our views and intentions, and to give you such information as would probably be interesting to your company. The Wetumpka and Coosa railroad company was chartered in 1835, with power to run a railroad from Wetumpka to the mouth of Beaver creek, on the Coosa river, being at the head of the shoals in said river. During the last session of our Legislature, our charter was amended, and the right given to run the road on to Gunter's landing, or to the Georgia line, or both, if the company should deem it proper. The object of our company is to build the road to one of said points as early as practicable. We have already had the road surveyed upwards of one hundred miles, and our engineer, Capt. D. H. Bingham, and corps, are now locating the first thirty miles, ready for contract, as advertised, upon the first of next month. You speak of a connection with our company. Upon that point we should be pleased to hear from you more definitely as to the nature and terms of the connexion you wish. Your propositions have been received with pleasure by our Board, as opening to our view the accomplishment of an object to which we have looked with great anxiety and solicitude. We are well aware of the benefit to be hoped for from the completion of the railroads now in progress and contemplation in our country, and to none do we look forward with more pleasure or more hope of advantage to our immediate section of the country, than the Hiwassee railroad, and to show you the feelings and wishes of our Board, by their order I herewith transmit you the following resolutions adopted on the subject of your communication:

Whereas, the Wetumpka and Coosa railroad company have it in view to extend their road so as ultimately to form a conjunction with the Charleston, Cincinnati and Louisville railroad, near Knoxville, in Tennessee: And whereas, a communication has been received from the President of the Hiwassee railroad company, asking for the ultimate views and determination of this company in relation to such extension—Therefore,

Resolved, That this company deem it expedient to extend our road to the Tennessee line, and that we will heartily co-operate with the Hiwassee railroad company, in opening a communication from Knoxville, Tennessee, to Wetumpka, Alabama.

Resolved, That this company appoint an agent to visit that part of Georgia and Tennessee through which our road will run, with authority to make such arrangements with any company in Georgia, whose road shall be in the direction of the proposed extension of our road, and with the Hiwassee railroad company, as may be necessary to effect the objects of this company.

Resolved, That the President of this company transmit a copy of these resolutions, with such remarks as he may deem necessary to accompany them, to the President of the Hiwassee railroad company.

The agent alluded to in the above resolutions, will probably not visit you before we hear from you a again.

Very respectfully,
Your obedient servant,
ALWIN A. McWHARTER,
President of the Wetumpka railroad company.

OCEAN STEAM NAVIGATION.

An article in the London Nautical Magazine, for March, furnishes the following notice of preparations which are making in England, in reference to the establishment of regular steam packet communications between that country and the United States. The boats, it will be seen, are to be of extraordinary dimensions, with machinery of corresponding power.

There are two vessels at present building to run direct from Bristol and London to New-York. The great Western Saip Company's vessel is building at Bristol, and is of the following dimensions and power:

Length between Perpendiculars,	316 ft.
Beam,	35 "
Depth in hold,	22 "

The engines are 400 horse power, having cylinders 73 inches diameter, and 7 feet stroke.

This noble vessel is expected to be ready in the course of the approaching summer, and will most probably make her first voyage in August next. She is intended to carry twenty-five days' fuel—a quantity quite sufficient to ensure the regular performance of the voyage in all weathers.

The British and American steam navigation company, whose head quarters are in London, have contracted with Messrs. Curling, Young & Co. of Limehouse, for a vessel of 1,795 tons, builders' measurement, and of the following dimensions and power:

Length between Perpendiculars,	335 ft.
Beam,	40 "
Depth,	27 "

to have engines of 460 horse power, having cylinders 76 inches in diameter, and 7 feet stroke. The engines are fitted to work either with or without Hall's condenser, at the option of the engineer. This magnificent vessel, the largest steam vessel ever yet propelled, will have capacity for twenty-five days' fuel, 800 tons of measurement goods, and 500 passengers.

We sincerely wish both the Bristol vessel and the London one all manner of success; and when we reflect on the immense intercourse between this country, the United States and Canada—sixty thousand people having landed at New-York from the 1st January to 1st September, and twenty-seven in Quebec last year—the increase that will naturally take place when the passage is shortened at 15 days, instead of 37, the present outward average passage of the New-York packet ships, we do not think that any, out of the numerous plans before the public, hold out stronger inducement to the capitalist than such undertakings.

It is difficult to estimate the national benefit that will accrue to both countries by the establishment of steam communication between them—the one with an overflowing population, the other with inexhaustible reserves of fertile lands—the one the greatest manufacturing, the other the most extensive producing country, in the world—both talking the same language, and allied by blood, religion, and feeling, with one another. Thus much, we may affirm, that it will greatly improve both countries, and render perpetual the peace that now so happily exists between them.

NEW-JERSEY RAILROAD.—We find in the Newark Daily Advertiser the following account of the business of this road.

We extract the subjoined statement of the business of the N. J. Railroad from the forthcoming Directory of this city:

Statement of the number of passengers carried on the New-Jersey Railroad, from its opening, Sept. 15th, 1834, to April 9th, 1837, furnished from the Books of the Company.

During the first seven and a half months there were carried,	60,064
During the year ending 1st of May, 1836,	176,751
During the year ending 9th April, 1837,	339,351

The Railroad opened for use from Rahway and Elizabethtown to New-York on the 1st January, 1836, and from East Brunswick (oppsite New-Brunswick) July 10th, 1836. The whole of the present line of Railroad has not been in use a full year, and as the viaduct over the Raritan is not yet finished, the business arising from the extended part is but partially developed. The number of passengers which have been carried to and from Newark and E. Brunswick and the intermediate places, exclusive of the passengers between Newark and N. York, during the year ending April 9th, 1837, is 102,931

The number carried between Newark and N. York in the same line, 236,420

Whole number during the year as above stated, 339,351

The increase of passengers for the first quarter of the present year, over the first quarter of the last year, is as follows:—

In January, Febuary, and March, 1836,	41,741
In January, February, and March, 1837,	69,228

The increase would have been greater if the business of the cities of New-York and Newark and the country generally, had not been so depressed, but the vast number of passengers compared with what were carried before the construction of the Railroad, fully proves that the travelling facilities now enjoyed by Newark has greatly increased the intercourse of Newark with New-York, and the different places on the line of the

Railroad. A further increase may be anticipated from the construction of the continuous line of Railroad across the State, for the completion of which an Act was passed at the last session of the Legislature of this State, and accepted by the Joint Companies, who are required to finish this connecting link of Railroad as soon as the New-Jersey Railroad is in use to New-Brunswick. This work will not only be highly advantageous to this city in its southern intercourse, but beneficial to the State and to the whole community, and will greatly augment the revenue of the New-Jersey Railroad and Transportation Company.

The Calais and Milltown Railroad was commenced upon last week, and it is expected the road will be ready for cars in October next.—[Portland Advertiser.]

THE CANALS.—The number of boats cleared and toll received by the collector of tolls at Albany, on the three first days of canal navigation in the years 1834, '35, '36 and '37, are as follows:

1834	boats	80	toll	$5,097 23
1835	"	83	"	7,056 44
1836	"	52	"	5,800 40
1837	"	140	"	14,888 70

This result is certainly calculated to excite some surprise, when the prevailing depression in money matters is considered.

[Albany Argus.]

From the Rushville Illinois Journal.

THE RUSHVILLE RAILROAD.—The Engineer W. Pollock has commenced examination and survey of the route for this road, to the Illinois River. We are much pleased with being able to announce this fact to our readers. There cannot now remain a doubt but it will be prosecuted with vigor to its final completion, and which will be a link in the great internal improvement which is about being commenced to connect the trade of this section of the State with those of Lake Erie and of the eastern cities, by the means of the Maume Canal

The Railroad from Beardstown, to Springfield, the future seat of Government, and there to insect the State Railroad from the Wabash. This means of communication, will cut off at least one thousand miles of difficult navigation, and will give to our merchants and others, a near and safe communication to the Lakes and the cities of New-York and Philadelphia. By this means the distance and expense of transportation will be reduced. This enterprise speaks much in favor of the knowledge and forecast of our enterprising fellow citizens—as they are unaided by any enactments of our Legislature. That the stock will be profitable, there cannot now remain a shadow of doubt. It will be the great thorough fare from the Wabash to Mississippi, and passing the seat of Government of this State. And again it is on the Route laid down for a Railroad from Alton via Carlton, Jacksonville and Beardstown to Rushville, Monmouth, on to Galena. Thus we will have the wealth of the mines, soil &c., passing on our Railroad. This is not ideal or imaginary ideas—they are self evident.

When it is known that for six or seven months in the year that all the mining region are shut out from market, by ice or low water—which cannot much longer be the case. Then we say that the stock must and will be profitable.

RAILROADS AND IMPROVEMENTS IN MICHIGAN.

We copy the following letter to the Editors of the Daily Express, to show the spirit of the people of Michigan, in these hard times. It is highly interesting to all kinds of mechanics.

From the New York Daily Express.

DETROIT, April 10, 1837.

The Spring has come forth here with all its "melting influences," and our river, with the exception of an occasional floating mass, from the upper lakes, is entirely free from ice. The navigation is open as far as Cleveland, and we are looking daily for a water communication with Buffalo.—Business has already made a brisk move, and we have a goodly promise of a busy summer. The contracts and projects for building during the coming season, are very numerous, and not a few buildings are already being erected. This has created a great demand for mechanics and laborers. They ask, and receive their own prices.—This demand is not like to be supplied, as I understand the contractors upon the railroad between this place and Ann Arbor require a very large number of workmen, for the construction of that road, and are offering the highest prices. Let Eastern mechanics and laborers look this way. There is no place where "working men" will meet with a warmer reception than in Detroit.

Some adequate idea may be formed of the growth of our city, from a Directory lately published, from which I extract a few Statistics. In March, 1834, there were but 1973 inhabitants, and 541 dwellings and stores. By the sensus taken early in the winter, it was ascertained that there are 9763 inhabitants, and exceeding 1300 stores and dwellings. Thus the population in two years and a half, has nearly doubled, and the number of buildings more than doubled!

The railroads—one running north-west, to Pontiac, another west to Ann Arbor, being a portion of the Detroit and St. Joseph's route, are under contract as far as the places above mentioned. It is believed that they will both be in operation, a part of the way, during the Summer. The Pontiac road, early in the season. A turnpike company was chartered by the last Legislature to construct a timbered road, between this city and Pontiac. One of the company informs me that so soon as the weather permits, the turnpike will be commenced, and if laborers can be had, finished by the middle of the Summer. The roads leading in every direction from Detroit, have hitherto been culpably neglected. They have been left in a condition both disgraceful to our public spirit and deeply injurious to the interests of the city. The attention of the citizens has been called to the subject during the past winter, and meetings held to devise the best means of remedying the evil. It is hoped that the public feeling will not sleep again until all of our great highways are at least in a passable condition. I extract further from the Directory. "There are seven churches in Detroit—two Catholics—one Episcopalian—one Presbyterian—one Methodist—one Baptist, and one German Lutheran. Four of the edifices for worship are built with taste and magnificence. Among the public buildings are the State House, City Hall, Theatre, Museum, Circus, Michigan Garden, and three Markets. There are two daily and one semi-weekly newspapers—a college (St. Philips') under the direction of the Catholic Bishop—two or three female seminaries—a number of literary, scientific, and charitable institutions—and three banks, 'all possessing in an eminent degree the confidence of the people in regard to soundness and stability.'"

I have given you in a former letter some statistics showing the increased trade of Detroit during the past year. I cannot, however, refrain from again alluding to the astonishing increase of commerce and navigation upon our Lakes. It is an unanswerable argument to those cavilers who contend that the whole prosperity and business of the West is but excitement and speculation, having nothing permanent or valuable.

In 1819, there was but *one* steamboat on the lakes, and this one sufficient for the trade at that period. There was last summer *thirty steamboats* of the largest size in navigation of the lakes between this port and Buffalo. Seventeen of these, forming an aggregate of 2080 tons, are owned in this city. These thirty boats, with one hundred and fifty vessels of other denominations, did not suffice for the trade of the last summer. Of the one hundred and fifty vessels, eighty-four, amounting to 5147 tons, belong to this port. Very justly does the author of the Directery conclude—"This affords a flattering and unequivocal proof of the prosperity of the capital of Michigan, and gives a glimpse of what it will be ten years hence."

I ought perhaps to add that a large number of vessels and steamboats have been built during the past winter, or are now building. There is now constructing in one of our yards a steamboat larger, I believe, than any at present floating upon the lakes. I intended when I commenced this letter, to say something of the interior of this State, whence I have just returned from an excursion of two weeks. I must, however, defer what I have to say to a future letter, as I find myself at the end of the sheet. I will barely add, that I have been delighted with the beauty of the country—the fertility of the soil—the thriving and bustling aspect of the villages—and the universal air of enterprise, intelligence, and contentment through the whole country that I have visited. I have come back more than ever convinced of the abundant resources and wealth of Michigan.

Yours, &c. W.

TRANSACTIONS OF THE INSTITUTION OF CIVIL ENGINEERS.

TABLE IX. CONTINUED.—THE SWIFT (FIRST SET).

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
No. of Experiment.	Boat's name.	Instant of passing the stake.	Stakes 110 yards apart.	Time of passing the stake-interval.	Miles per hour.	Tractive power in lbs.	Feet per second.	Kind of tractive power.	Load.	Wind.	Draught. Bow.	Draught. St'n	Position of Wave.	Variation in Level.	Remarks. PLACE OF EXPERIMENT, GLASGOW AND PAISLEY CANAL
306	SWIFT.	29 56	*b*												
				41	5·49	268·8	8·05	do.	do.	do.	do.	do.	do.	do. do. elev. 58′	
		30 37	*c*												
				41½	5·42	347·7	7·95								
		31 17½	*d*												
307	SWIFT.	38 50½	*b*												
				47	4·79	91·2	7·02								
		39 37½	*c*					do.	do.	do.	do.	do.	do.	do. do. elev. 3′	
				47½	4·76	76·6	6·95								
		40 25	*d*												
308	SWIFT.	44½	*b*												
				28	8·03	266.6	11·79							do.	
		1 12½	*c*					do.	do.	light	do.	do.		do. elev. 1°20	
				26½	8·49	358.8	12·45								
		1 39	*d*												
309	SWIFT.	52 15	*b*												
				34	6.62	341·8	9·71		9 passengers, & 2t. 15 cwt. = *c. q. lb.* 67 0 25						
		52 49	*c*					do.		do.					
				34	6.62	335·5	9·71								
		53 23	*d*												

TABLE X.—ZEPHYR AND RAPID LASHED TOGETHER.—(2 *Experiments.*)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
No. of Experiment.	Boat's Name.	Instant of passing the Stake.	Stakes 110 yards apart.	Time of passing the stake interval.	Miles per Hour.	Tractive power in lbs.	Feet per Second.	Tractive power.	Load.	Wind.	Draught. Bow	Draught. St'rn	Position of Wave.	Variation in Level.	Remarks. PLACE OF EXPERIMENT, FORTH AND CLYDE CANAL.
	ZEPHYR	min. sec		sec.	miles.	lbs.	feet.								
	and	53 20	*b*	34	6·62	297·5	9·71		7 passen-						
	RAPID	53 5	*c*	34	6·62	264·4	9.71	Two	gers, =	not	in.	.	not	not	
310	lashed	54 28	*d*	35½	6·34	231	9·30	Horses.	*c. q. lb*	obs.	7	6	do.	obs.	
	together.	55 03½	*e*	36½	6·16	501·5	9·04		9 2 1						
		55 40	*f*												
		21 46	*b*												
				21	10·71		15·71								
		22 07	*c*												
				21	10·71		15·71	Three							In this experiment the pu'l went above the range of the Dynamometer in the first two stake-intervals.
311	do.	22 28	*d*	24½	9·18	472	13·47	Horses.	do.	do.	do.	do.	do.	do.	
		22 52½	*e*												
				24½	9·18	521·8	13·47								
		23 17	*f*												

TABLE XI.—THE SWIFT (Second Set.)

ACTUAL TRACTIVE POWER OBSERVED IN WORKING THE SWIFT EIGHT MILES ALONG THE GLASGOW AND PAISLEY CANAL, AT THE ORDINARY PASSENGER-SPEED, OR NINE MILES PER HOUR.

Tractive Power in lbs.	Remarks.	Tractive Power in lbs.	Remarks.	Tractive Power in lbs.	Remarks.	Tractive Power in lbs.	Remarks.
170	Load—Eleven passengers	225		350		240	pass Bridge.
400	and 2 ton. 15cwt., equal	215		240		310	
400	to 69 cwt. 3 qr. 20 lb.	210		300		260	
280	from Half-way House to	225		305		235	
260	Glasgow, and one pas-	195		270		245	
265	senger additional from	220		235		240	pass Course——Place
240	the Culvert to Glasgow.	285	pass Bridge.	230		230	where the Experi-
230	pass Mile-stone.	270		235		215	ments were made.
240		230		240		215	
230		220		235		240	
220		235	pass Mile-stone.	225		210	
210		230		225		200	
205		235		240		235	
210		245		230		200	
215		270		260	Barge passes.	120	pass Aqueduct.
215		260		250		120	
210		230		275	turn.	150	
220		205		250		150	
245	turn corner.	215		230	pass Mile-stone.	130	
235		235		230		120	
265		235		210		100	
245		300	pass Narrow Bridge.	215		110	
205		360		235		110	
220		350		235		110	
200		300		225		100	
200		240		215		90	
195		290		215		100	Port Eglinton.
190	stop and take in a passenger.	320		215			
390	Load, therefore, about 71 cwt.	300	A Boat passed.	230			
425	go on again.	270		240			
380		320		235			
230		250		270			
220		340	pass Bridge. Bad turn.	260			

TABLE XII.—THE ZEPHYR (Second Set).

ACTUAL TRACTIVE POWER OBSERVED IN WORKING THE ZEPHYR EIGHT MILES ALONG THE FORTH AND CLYDE CANAL, AT THE ORDINARY PASSENGER-SPEED, OR NINE MILES PER HOUR.

Tractive Power in lbs.	Remarks.	Tractive Power in lbs.	Remarks.	Tractive Power in lbs.	Remarks.	Tractive Power in lbs.	Remarks.
395		370		405		315	
395	Load—Nine passengers	375		395		305	
395	and 3 ton, equal to 72	350		340		300	
400	cwt. 0qr. 25lb.	250		190	stopped by a Vessel at	310	
415		240		70	Brdge.	295	
445		285	turn.	0		300	turn.
555		320		0		325	

TABLE XII. CONTINUED.—THE ZEPHYR (SECOND SET).

460		325		00		325	
190	pass Bridge.	350		170	pass Bridge.	340	
20	take off Rope.	420		330		300	
20		425		380		310	pass Culvert.
20		420		385		270	turn.
300		260	pass Bridge.	385		310	
310		0		390		370	
310		0		380		355	
100	pass Barge.	0	pass Mile-stone.	385		385	
0		440		370		360	
0		445		370		280	
0		395		370		265	turn.
50		385		335	pass Mile-stone.	245	
300		365		330		300	
355		380		270		370	
395		386		160		360	
420		385		150	pass Stockfield Bridge.	310	
425		360		0	stop.	320	pass Mile-stone.
425		350		0		345	
410		355		0		360	
405		330		130	start again.	390	
405		325		310		390	
405		350		355		390	
375		320		355		400	
355		345		345		400	
355		340	turn.	340		400	
345		290		315		370	Lamb-hill Bridge.
320		200		320		140	
320		230					
330		250					

ON THE LOCKS COMMONLY USED FOR RIVER AND CANAL NAVIGATION. BY MR. W. A PROVIS, M. INST. C. E.

1st. *Simple dam locks.*

The earliest approximation to what is now known by the name of lock, consisted of a simple dam formed across the bed of a river, so as to raise the water to such a height as to allow vessels to float along it. Where the river had a considerable fall with a strong current, it was necessary to have these dams at short distances from each other, otherwise the requisite depth of water could not be obtained. As the whole space between two of these dams was in fact the lock, it was necessary in passing from one level to another, to run down the water for the whole of that distance, thereby causing considerable delay, and a waste of water that would now be considered a serious evil. In China these dams are very common; they have also been used on the continent of Europe, and what is not a little extraordinary, are at this very day in use in our own country. My brother having given me a description of one of these which he saw on the river Ouse, near Tempsford, in Bedfordshire, I here insert it. The river is somewhat contracted in its breadth by a wall on each bank, between these two a third, or middle wall, is built, with cutwater ends. At the middle of each of the passages formed by these walls a sill is extended across the bottom of the channel, and pile planks are driven along its upper side, with the necessary sheeting to prevent the water getting under it. On one of the side walls a beam similar to the balance of a common canal lock gate is placed, which turning horizontally upon an axis, one end is made to abut against a projecting piece of timber which is fixed in the middle wall; this beam and the before mentioned sill form the top and bottom of a frame, on the upper side of which a row of vertical planks is placed, one at a time, so as to form the working dam; the other space has a piece of timber fixed at the top of its two side walls, corresponding with the sill below, and vertical planks are placed between these in the same manner as at the other opening, but as vessels are not intended to pass through more than one of the openings, the upper beam in the other is fixed. The use of this second space or opening is to allow the water to be run off more expeditiously, particularly during floods. In going up the stream, a vessel passes the place where the temporary dam is to be formed, and then the moveable or balance beam is swung round, the vertical planks put down, and the water thereby completely stopped till it rises to such a height as to run over the top of the dam; before this takes placel the vessel has sufficient water, and she proceeds on her voyage to the next dam above; these dams are kept open when there is no vessel near, and at all other times when there is sufficient water for navigation without penning it up. It may appear, at first, that it would be more advisable to have a complete gate similar to those now generally used on canal locks, but a gate would be attended with those inconveniences, that the water could not be run out in so short a time by its paddles as it can when the whole space which the gate would occupy is available, and also the difficulty of opening against a rapid stream a gate of the required size. Though this principle of damming up the water was a valuable improvement in our river navigation at the time it was introduced, yet as it is only applicable when water is abundant, and must at this time be considered a very rude mode of passing from one level to another, it requires no argument to show that it must soon give way to the adoption of our modern locks.

2d. *Lock with a double set of gates, but no chamber walls.*

The evils attendant on the dams just described were in a great measure removed by the introduction of double sets of gates or sluices; the upper set being constructed so near to the lower, as only to leave room enough for the vessel or vessels to float between them. Framed gates were also used instead of separate beams and planks, because the space to be emptied or filled was so small, that a very short time was required to pass the water; and there was no stream of sufficient strength to prevent their being easily opened. Where these locks are intended for rivers, it is usual to make a side cut or artificial canal for the purposes of the navigation, and to leave the river course for the passage of the surplus water. A quick bend of the river is generally chosen for one of these cuts, and to keep the water in the upper part of the river to a sufficient height for navigation, a dam or weir is made across the old river course at or below the point where the artificial cut quits it. The lock is then built at the most convenient part of the cut, and its fall made equal to the difference in the levels of the water at the top and at the bottom of the dam or weir. When a vessel is going up the river, she floats along the cut, and passes between the lower gates into the lock, the lower gates are then closed, and the valves or paddles of the upper gates being opened, the water

flows into the lock, and rises to the level of the upper part of the river; the upper gates are then opened, and the vessel floats out of the lock. Of course the reverse of this operation would conduct a vessel down the river.

It will be obvious to every one, that the sides of these locks must rise above the level of the higher part of the river, otherwise the water would flow over and injure them. The gates should also rise above the highest water's surface, or the water would flow over their tops and probably into the passing vessel, so as to endanger its safety or damage its cargo. It has been common to make the gates no higher than the water's surface, but the before mentioned inconveniences show the necessity of making them higher, and of constructing the dam or weir of sufficient breadth to take off with facility all the surplus water.

The abutments for the gates have been made of timber, brickwork and masonry, but when the double set of gates was first introduced, it was usual to leave the space between the upper and lower gates unprotected by either timber or any kind of building. Of course the agitation of the water in the lock was constantly washing away the earthen banks, thereby causing a risk of their being broken down by such continued weakening; and by enlarging the space between the two sets of gates, it occasioned a loss of time in emptying and filling, as well as a waste of water.

3d. Locks with a double set of gates, and the sides of the chamber secured by timber.

To check the mischievous tendency of leaving the chamber unprotected, the side banks of many old locks have been in part secured by driving a row of piles along the base of each slope, and fixing planks at the back of them, so as to form a wooden wall for about half the height of the lock; but there is sometimes a risk in trying this experiment, for the space between the two sets of gates being frequently lined or covered with puddle, resting on a porous substratum, the water often escapes by the sides of the piles, and causes not only leakage but a danger of blowing up the lock.—Examples of this sort of lock may be seen on the river Lea navigation.

4th. Common modern canal lock.

It is not until the construction of artificial canals became very general that locks were brought to any thing like perfection, for the difficulty of procuring sufficient supplies of water had been but partially felt when our inland navigation was confined to a few of the principal rivers.

When canals had spread themselves in various directions over the country, and water became so scarce and valuable as to be the cause of much litigation and expense, it was necessary to be careful of every resource, and to use it with the strictest economy. For this purpose, the space between the upper and lower gates was contracted to such a breadth as only to leave room enough for the vessel, and the bottom and sides were constructed of brickwork or masonry, instead of sloping banks of earth. By these means the superficial area of the lock was reduced to very little more than that of the vessel, and consequently was as small as it could be made.

The difference of altitude between the upper and lower levels, where the locks are constructed, varies according to local circumstances. Where the ground is longitudinally steep and water plentiful, the locks are generally made of greater lift or fall than where the ground is comparatively flat and water scarce. It is evident that, where the superficial area of locks is the same, one having a rise of 12 feet would require twice the quantity of water to fill it that would be requisite for one of 6 feet. Having many locks, however, of small lifts instead of a few of greater, increases the expense as well as the time for passing them.

For narrow canals these locks are generally made about 80 feet long, and 7½ to 8 feet wide in the chamber. On the Caledonian canal they are 180 feet long, 40 feet wide, and 30 feet deep. Locks are also constructed of every intermediate size.

Lock gates have till lately been made of timber; but in consequence of the difficulty of procuring it of sufficient size for those on the Caledonian canal, cast iron was partially adopted for the heads, heels, and ribs. Iron gates, cast in one piece, have been used on the Ellesmere canal, as well as others with cast-iron framing and timber planking.

Whether constructed in a single leaf, or a pair of leaves, the gates of locks are usually made to turn horizontally upon a pivot at the bottom of the heel; but there is a singular exception at the locks on the Shrewsbury canal, where, at each end of the lock, a single gate is made to rise and fall vertically, in grooves in the side walls. A pulley is fixed on its axis about 12 feet above the lock, over this a chain is passed, one end of which is fixed to the top of the gate, and the other to a weight, by which the gate is so nearly balanced as to allow of its being worked up and down by one man. On entering or quitting the lock, the boats pass under these gates.

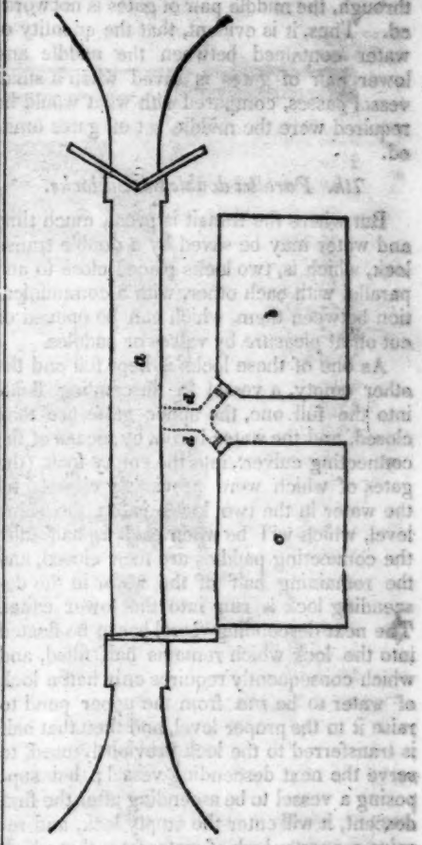
I am not aware of any lock in England of greater rise than 18 feet, but Tatham in his work on canals, (p. 164,) mentions one of 20 feet rise, built in 1643, by Dubie, between Ypres and Furnes, to connect the canals which bear those names. There are two pair of upper gates to this lock to guard against accidents.

On the Languedoc canal there is a celebrated circular lock, which has had more credit bestowed upon it than it deserves. The fact is, it is nothing more than a circular basin, into which three canals of different levels descend by common locks.

Various modifications of this principle have from time to time been adopted, either to save water, time, or expense.

5th. Locks with side ponds.

When water is scarce, it is common to construct side ponds, by which a considerable portion (in general one half) is saved. The usual number of these ponds is two, for it has been determined by experience, that when a greater number have been made use of, the loss occasioned by leakage and evaporation has sometimes been more than equal to the additional quantity of water retained.



In the accompanying sketch, *a* is a common lock, *b* and *c* two side ponds, (each equal to the area of the lock,) *d d* two culverts with paddles, each communicating with the lock and one of the side ponds. Supposing the lock to fall 8 feet, the bottom of the pond *b* will be 4 feet, and that of *c* 6 feet below the surface of the lock when full. If a vessel is to descend, it enters the lock when full, and the gates being closed, the paddles of the side pond *b* are opened, and the water flows into it till the level of the water in the lock is lowered, and that in the side pond raised, till they are the same, which will be when the water in the lock has sunk 2 feet; the paddles of the side pond *b* are then closed, and those of *c* opened; a similar operation then goes on till the water in the lock has sunk 2 feet more, when the paddles of *c* are also closed, and the remaining 4 feet of water in the lock is run into the lower level of the canal, through the paddles in the lock gates. When the lock is to be filled the water in *c* is first run into the lock, which raises its surface 2 feet, the water in *b* is next run into it, which raises the surface another 2 feet, making together half a lock full, the upper half is then run down from the higher level of the canal.

6th. Locks for the transit of vessels of different sizes.

Where vessels of different sizes have to pass the same locks, three pairs of gates are sometimes placed instead of two,—the distance between the upper and lower pairs being sufficient to admit the largest vessels, and that between the upper and middle pairs being adapted to the smaller class. By this

contrivance, when a small vessel is to be passed through, the lowest pair of gates is not used, and when a large vessel goes through, the middle pair of gates is not worked. Thus, it is evident, that the quantity of water contained between the middle and lower pair of gates is saved when a small vessel passes, compared with what would be required were the middle set of gates omitted.

7th. Parallel double transit locks.

But where the transit is great, much time and water may be saved by a double transit lock, which is, two locks placed close to and parallel with each other, with a communication between them, which can be opened or cut off at pleasure by valves or paddles.

As one of these locks is kept full and the other empty, a vessel in descending floats into the full one, the upper gates are then closed, and the water is run, by means of the connecting culvert, into the empty lock, (the gates of which were previously closed,) till the water in the two locks is on the same level, which will be when each is half full; the connecting paddles are then closed, and the remaining half of the water in the descending lock is run into the lower canal. The next descending vessel has to be floated into the lock which remains half filled, and which consequently requires only half a lock of water to be run from the upper pond to raise it to the proper level, and then that half is transferred to the lock previously used, to serve the next descending vessel; but supposing a vessel to be ascending after the first descent, it will enter the empty lock, and receive a quarter lock of water from that which remained half filled: of course three-quarters of a lock of water is now required from the upper canal to complete the filling. If a descending vessel next follows, it enters the full lock, and its water is run into the lock which was previously left a quarter full, and when both have arrived at the same level, it is evident they will be each five-eighths full; and the succeeding descending vessel will require only three-eighths of a lock of water from the upper pond or canal. From these observations it will be seen that the double transit lock saves nearly one-half the water which a common single lock would require.

Sometimes the two parallel locks are made of different sizes, to suit the various description of vessels that may have to pass.

8th. Locks connected longitudinally, commonly called a chain of locks.

When loss of water is of no consequence, a considerable expense is sometimes saved, by placing the locks close together without any intermediate pond, for by passing from one immediately into the other, there is only required one pair of gates more than the number of locks so connected, besides a proportionate saving of masonry.—Thus, 8 connected locks would only require 9 pairs of gates, whilst, if they were detached, they would require 16 pairs; but to show that these cannot be adopted with propriety, excepting when water is abundant, it is necessary to observe that every two alternate ascending and descending vessels will require as many locks full of water as there are locks; for instance, if a vessel has just ascended, it has left all the locks full, a descending vessel then enters the upper lock, and when its gates are closed, the water is run down, but all the locks below being previously filled, they cannot contain it, and it consequently passes over the gates or weirs of all of them into the lower canal: the vessel has by this means descended to the level of the second lock, the water in which must also be run into the lower canal, for the same reason as already stated. When the water of all the locks has thus been run down, an ascending vessel will require all these locks to be filled from the upper canal, which, however, will be retained in the locks ready for the succeeding vessel to pass down. From this it will be evident that where 8 locks are connected, a descending vessel draws no water from the upper canal, because the locks are previously all filled, but it empties 8 locks of water into the lower canal; an ascending vessel on the contrary empties no water into the lower canal, because all the locks were previously emptied, but it draws 8 locks full from the upper canal in order to fill them consequently the passing of one ascending vessel, and one descending, requires 8 locks full of water.

9th. Other modes for passing vessels from one level to another.

By substituting machinery, either wholly or in part, have been adopted; but these have either failed entirely, or not been brought into general use.

AN ACCOUNT OF THE NEW OR GROSVENOR BRIDGE OVER THE RIVER DEE AT CHESTER.

[The drawings from which the engravings of this bridge (plates Nos. VII. and VIII.) have been made were furnished by Mr. John B. Hartley, son of the engineer under whose direction the edifice was built, and the following account has been derived from a letter from him to the President, accompanying the plans, and other original communications in the possession of the Institution, and partly from the minutes of conversation at several meetings when Mr. Trubshaw, the contractor for the work, was present*, while such other trustworthy sources of information as were accessible have also been referred to. The statements, so far as they go, rest therefore on good authority, but the Council cannot help regretting that they are unable on this occasion to present a connected account of the work worthy of its magnitude, directly from the pen of some one of the gentlemen engaged in its construction.

Though the site of the new bridge is quite apart from that of the old one, and the latter exists as before with the exception of being no longer the leading thoroughfare, a short notice of the ancient structure, as supplied by antiquarian writers, has not been considered altogether out of place.]

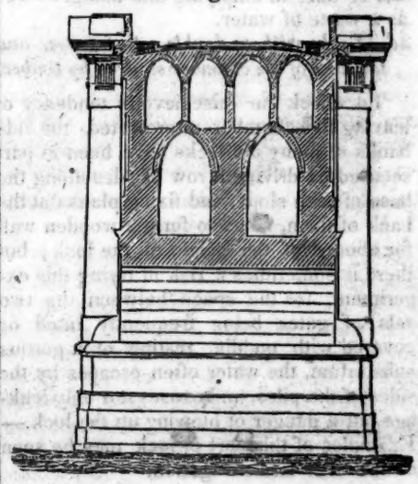
The old bridge over the Dee at Chester extends from the city to a suburb on the opposite side of the river named Handbridge.

The first notice of a bridge in this place occurs in the thirteenth century, during which it is recorded to have fallen down or been carried away twice. Those structures were most probably of timber, but on the second accident alluded to a stone erection seems to have been substituted at the cost of the citizens: this was in 1280, and it does not appear that the bridge has been entirely rebuilt since, though it is mentioned that part next Handbridge was "made new" in the year 1500. The two arches on this side are plainly of later build than the rest; one of them is in form a segment of a circle, the other is very slightly pointed, while the remaining arches are pointed Gothic. The whole has been repaired and widened within the last few years.

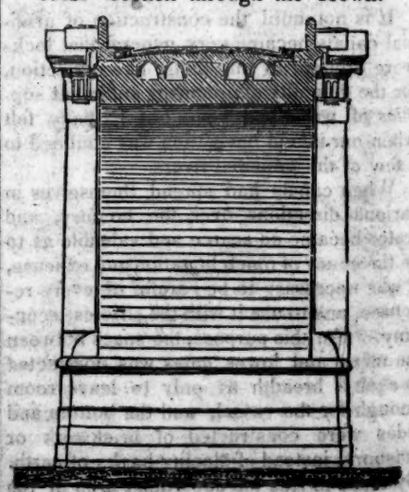
As usual in former days, Chester Bridge was provided with its gates, which remained until towards the end of last century. Each extremity of the bridge was guarded in this manner, and over the gate next the city stood a tower, named "Tyrer's Tower," for raising water from the wheels under some of the arches for the supply of the town: the tower no longer exists, and there is now only one gate, a modern edifice, on the English side of the river, but the water works and the weir still remain.

Plate 7.

Cross Section throguh the line A. B.

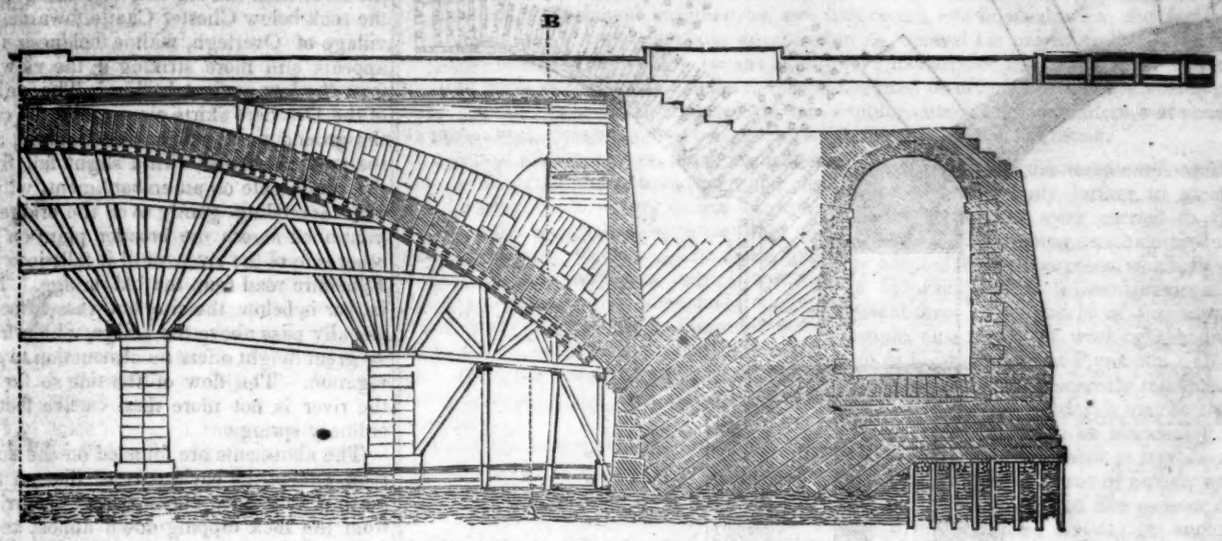


Cross Section through the Crown.

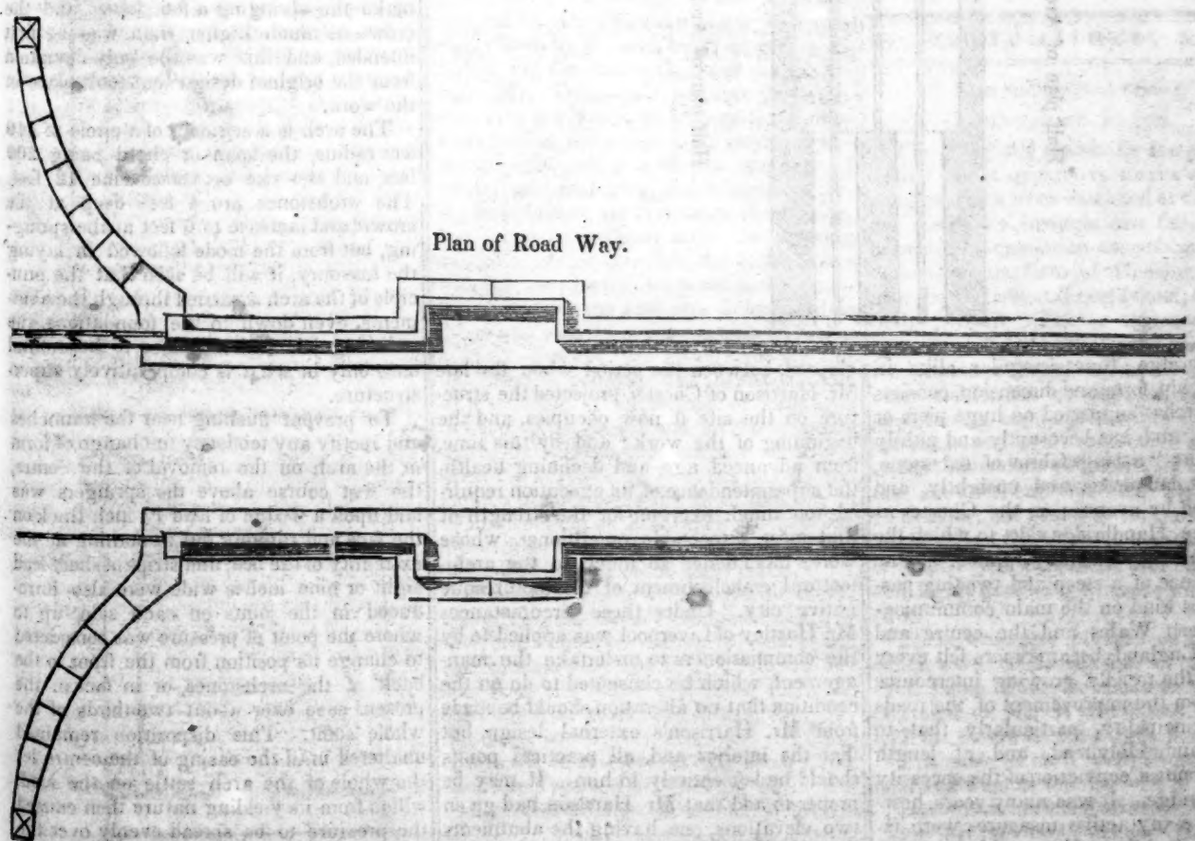


* Orig. Commun. Vol. IV. No. 9, and Vol. V. No. 16; Min. of Convers, Vol. V. Nos. 8, 9, and 18.

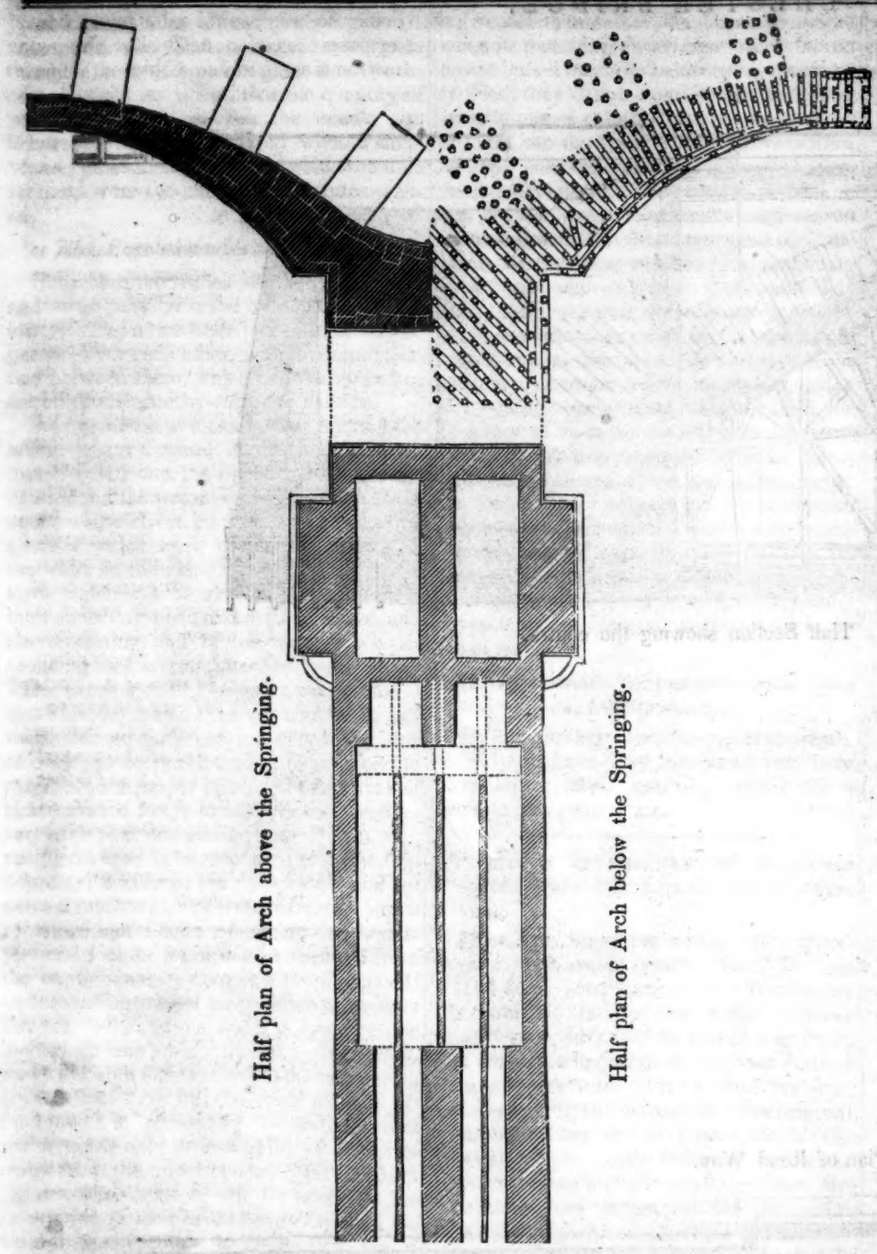
CHESTER BRIDGE.



Half Section showing the centre.



Plan of Road Way.



The bridge, thus irregular alike in workmanship, form and dimension, consists of seven arches supported on huge piers or buttresses, and has been aptly and pithily described as "a long fabric of red stone, extremely dangerous and unsightly, and approached by avenues on the Chester as well as the Handbridge side, to which the same epithet may be safely applied."* The inconvenience of a steep and twisting passage of this kind on the main communication between Wales and the centre and north of England, became more felt every day amid the rapidly growing intercourse arising from the improvement of the roads in the principality, particularly that to Bangor and Holyhead, and at length brought about a conviction of the necessity of a new bridge. It was many years, however, before any active measures were taken to carry so desirable an object into effect, nearly a quarter of a century having elapsed between the period when the late Mr. Harrison of Chester projected the structure on the site it now occupies, and the beginning of the work; and by this time, from advanced age and declining health, the superintendence of its execution required too much exertion for the strength of that most respectable practitioner, whose works have added so much to the architectural embellishment of his picturesque native city. Under these circumstances Mr. Hartley of Liverpool was applied to by the commissioners to undertake the management, which he consented to do on the condition that no alteration should be made from Mr. Harrison's external design, but that the interior and all practical points should be left entirely to him It may be proper to add that Mr Harrison had given two elevations, one having the abutments ornamented with Grecian Doric columns, the other having a plain niche with a pannel over it, and that the latter was adopted by Mr. Hartley's advice.

* Ormerod's Cheshire, Vol. I. p. 285.

The new bridge is situated about a quarter of a mile to the west of or lower down the river than the old one, stretching from the rock below Chester Castle towards the village of Overlegh, with a boldness that appears still more striking if the view be from the low ancient bridge. The valley of the Dee here skirts close round the city, the ground next which rises rapidly, and the road is carried with a slight fall from the castle gate on an embankment, which, after ascending gently over the bridge, is continued across the broader plain on the other side of the river, until it falls into the Flintshire road from the old bridge. The harbor is below the site, but vessels occasionally pass above the bridge, which from its great height offers no obstruction to navigation. The flow of the tide so far up the river is not more than twelve feet in ordinary springs.

The abutments are founded on the solid rock, except the back part of that on the north or city side, where, a fault occurring from the rock dipping down almost vertically as shown on the section, piling became necessary; and so soft was the material with which the fissure was filled, (a kind of quagmire or quicksand,) that the piles went down five or six feet at a blow for a considerable part of their depth. On the head of the piling a floor of stone was laid and the abutment built upon it. In consequence of the defect in the foundation just mentioned it was considered prudent, with a view to keep the lateral thrust of the arch within the limit of the rock, to make the springing a foot lower and the crown as much higher than was at first intended, and this was the only deviation from the original design that took place in the work.

The arch is a segment of a circle of 140 feet radius, the span or chord being 200 feet, and the rise or versed sine 42 feet. The archstones are 4 feet deep at the crown, and increase to 6 feet at the springing, but from the mode followed in laying the masonry, it will be seen that the principle of the arch is carried through the abutments, even down to the foundations, the radiating joints giving place to horizontal ones only in what is comparatively superstructure.

To prevent flushing near the haunches and rectify any tendency to change of form in the arch on the removal of the centre, the first course above the springers was laid upon a wedge of lead 1½ inch thick on the face and running out to nothing at the extremity of the bed, and strips of sheet lead eight or nine inches wide were also introduced in the joints on each side, up to where the point of pressure was considered to change its position from the front to the back of the archstones, or in fact in the present case over about two-thirds of the whole soffit. This disposition remained unaltered until the easing of the centre let the whole of the arch settle on the lead, which from its yielding nature then caused the pressure to be spread evenly over the whole of the bed of each course, and thereby prevented drafts or openings at the back of the archstone joints; the wedge-piece at the springing also acting by way of ad-

justment, and counteracting the inclination of the arch in coming to its bearing when the centre is struck to throw an undue weight on the intrados of the springing course. Judging from the soundness of the archstones throughout, this plan seems to have answered fully the end sought, the weight having been received so uniformly and gradually on all points, that not the slightest appearance of *spaulching* or cracking is perceptible in the work of the great arch.

In setting the keystones three thin strips of lead were first hung down on each of the stones between which they were to be inserted, and the keystone being then besmeared with a thin greasy putty made of white lead and oil, was driven down with a small pile-engine, the lead acting as a slide and preventing grating until the stone was quite home.

The mode in which the spandrils were made up internally, by tiers of pointed arches with flag-stones or landings at top to carry the road material, will be seen by a glance at the cross section on plate No. VIII; and indeed beyond what has been already stated, and the materials used which are now to be described, with the mode of dressing them, there does not seem much of importance as regards the construction of the permanent part of the work which an inspection of the plans will not readily supply.

The river face of the abutments up to the springing, and the first two courses of archstones above, are of granite; the key-course with one on each side of it and the quoins all through the arch are of the limestone known as Anglesea marble, and the rest of the work, including all the other archstones, almost entirely of the sandstone of the country. The granite was brought from Craignair near Castle-Douglas in Kirkcudbrightshire, the limestone partly from Anglesea and partly from the similar quarries of Wagbur near Burton in Kendale, and the other stone for the outside works from Manley near Northwich and Peckforton near Nantwich in Cheshire, the quarries of both which places produce a superior kind of the new red sandstones. The principal part of the banking is of a similar sandstone, found adjacent to the site of the bridge. The mortar used was made from the lime found in the neighborhood, mixed with twice its bulk of sand.

The external faces of the bridge and abutments, with the cornices, parapets and dressings, are neatly tooled; the land-arches and wings slightly chamfered in the joints and then scappled off, so as to have a rougher and more rustic appearance. The archstones of the main arch are also chamfered in the soffit joints, two inches on each arris.

The centre on which the stupendous arch of Chester new bridge was raised, and which is stated by Mr. Hartley to have been exclusively designed by Mr. Trubshaw, claims a detailed notice, from the novelty of the principle it was formed on, the efficiency with which it did its work, and the economy that attended its use. The centre consisted of six ribs in width, and the span of the arch was divided into four spaces by means of three nearly equidistant piers of stone built in the river, from which the timbers spread *fan-like* towards the soffit, so as to take their load *endwise*. The lower extremities of these radiating beams rested in cast iron shoe-plates on the tops of the piers, and the upper ends were bound together by two thicknesses of 4 inch planking bending round, as nearly as they could be made, in the true curve of the arch. On the rim thus formed the *lagging* or covering, which was 4½ inches thick, was supported over each rib by a pair of folding wedges, 15 or 16 inches long by 10 or 12 inches broad and tapering about 1½ inch;—for every course of archstones in the bridge there were therefore six pairs of striking wedges. The horizontal timber of the centre was only 13 inches deep, and the six ribs were tied together transversely near the top by thorough bolts of inch iron, but with a view not to weaken and injure the timber more than was absolutely necessary, the least possible of iron was used.

From this description and an examination of the drawing it will be observed, that the centre differs essentially from those that have been used elsewhere. At first sight it reminds one of that employed by Smeaton in building Banff bridge, but the likeness is only apparent. Each rib of the latter is a complete connected frame from pier to pier, though supported intermediately, and is capable of being eased only as one mass by the folding wedges which are placed under and carry it; whereas in the Chester centre each rib is composed of four distinct and independent parts, and carries the wedges on its outer rim instead of being borne by them, so that it can be struck gradually, being made tight at one place and slackened at another, according to the symptoms shown by the arch as its support is removed and the stonework comes to its bearing. Mr. Trubshaw's principle is, therefore, in a few words, to arrange the timber so as to have the strain all in a vertical direction, doing away with the necessity of much horizontal tying, which from its sinking he considers apt to derange the framing, and to ease immediately under the covering instead of under the sill of the centre; and with this construction he would strike a centre soon after the arch was finished, while the mortar was yet as it were a paste, easing a little at first and then giving some time for the joints to accommodate themselves, and so proceeding. His method of striking is to keep up the crown and let the haunches down, and though this has a tendency to press the keystone up, he states that he has found a greater and more usual difficulty to be in managing an arch after the key was lowered, as it must be at once and beyond recall with centres of the usual make.

The centre was of fir, and with the exception of the parts already mentioned as otherwise, was composed entirely of whole and half timbers;—pieces from 22 to 36 feet long were not bored with more than one hole, and it of small size, so that, the material being sound when taken out, the whole cost to the contractor was only about £500, an amount which, even allowing for the advantage derived from the accidental circumstance of a quantity of seasoned wood being opportunely required for a public work in the neighborhood, must still be considered a very low price for a structure requiring 10,000 cubic feet of timber. That the expectations of the projector were fulfilled in other respects also, is proved by the circumstance of half the arch being turned before the centre was finished, while the fact that on its removal the crown sank only from 2½ to 2⅝ inches, the joints remaining perfectly close and no derangement of form being perceptible, attests the skill and care at once of the carpenter and the mason.

In reference to the temporary works, it seems necessary only further to mention that the archstones were carried to their places by the traversing machine now usually adopted for such purposes, which, though old in principle, it is believed assumed its present form in the hands of the late Mr. Rennie, as a means of working the diving bell in his operations at Plymouth. Of the contrivance, though it scarcely requires description in the present day, it may be shortly said, that it consists in suspending the body to be moved to a carriage travelling on a railway fixed on a frame of timber, which frame is itself moved in like manner on a similar railway under and at right angles to it, so that the carriage has a double motion and can be brought over any point within the range of the frames to deposit its load. In the present case the *inferior* railway extended from abutment to abutment, resting on the intermediate piers, and on it travelled two transverse frames of from 45 to 50 feet span, so as to embrace the whole width of the arch; and there being thus a carriage at each end of the bridge, the setting of the archstones did not consume much time.

To be continued.

Agriculture, &c.

From the New-York Farmer.

PLOUGHING MATCH.

The ploughing match, for the purpose of testing the comparative merits of several ploughs which were exhibited at the Fair of the American Institute last fall, was witnessed by a numerous assemblage of gentlemen, on the farm of General Johnson, near the Wallabout, Long Island, on Friday 28th of April The arrangements of the committee for this trial were well made; the ground selected unsurpassed by any other field in the country, for such a purpose, having been cultivated by its present venerable, and highly respectable proprietor, and his immediate ancestors, for *more than two centuries*, and now in a high state of cultivation; the teams good, and the day as bright and as fine as could be desired; and of course the exhibition was interesting, and highly gratifying to those who witnessed it.

There were five ploughs on the ground which were used, only four of them however, came from the Institute; the fifth belonged to Mr. Wyckoff and was tried with the others for his satisfaction.

The ploughs used were arranged in the field and tried as follows—viz:

1st. "Dutcher's Patent castiron Plough."

2d. Mr. Wyckoffs plough, also cast iron, "Steven's Patent."

3d. "Weaver's Patent cast iron Plough," from Baltimore.

4th. "Dysdale's *Iron*," or rather as it is usually called, "Scotch Plough"—being *entirely* of iron; and

5th. "Miner and Horton's cast iron Plough," from Peekskill, N. Y.

These ploughs were all held by the judges and many other gentlemen, both practical and unpracticed farmers; and most of them performed quite as well as could have been expected, considering their condition, which was by no means suitable for the objects of the trial. No plough, however good it may be when used sufficiently to become smooth and bright, can be properly appreciated and judged of from a first trial; and any plough maker who risks the character of his work in that condition, with a view of testing its comparative merits with other ploughs, deserves, at least disappointment, if not defeat.

The gentlemen who acted as judges were every way competent to decide upon the relative merits of the ploughs. They tested them fairly, and decided justly, according to their performance; and no one interested in the decision, if disappointed, has, in our opinion, cause to complain of any thing except his own want of preparation.

The award of the judges, after mature consideration, was as follows:

"The undersigned committee, appointed be the American Institute, critically to examing the several Ploughs exhibited, and put into operation on the farm of General Jeremiah Johnson, at the Wallabout, report—

That on such examination they do unanimously agree, and decide that the yellow plough of Josiah Dutcher is the best, and that the plough of Minor and Horton is the second best, both as to their structure and operation. The committee would further state that the plough brought and tested by Mr. Wyckoff, although not within the province of the committee to decide upon, is deemed equal to the second best,—Dated at the Wallabout, this 28th day of April, 1837.

LEFFERT LEFFERTS,
JOHN WYCKOFF,
GERRIT KOWENHOVEN,
NICHOLAS N. WYCKOFF,
JAMES CROPSEY,
JEREMIAH LOTT."

By this report it will be seen that number 1, took the first premium, and number 5, the second—number 2, being equal to number 5, but not entitled to compete for the premium, as it was not exhibited at the Fair of the Institute. Number 3, and 4, were not mentioned in the report,—number 1, or *Dutcher's* plough, was in good condition for work, had a good team and performed admirably.

Number 5, or *Minor and Horton's* plough was not in good condition, being rough, and *without coulter*, except a sort of Rhinoceros horn, or cutter, extending up from the *share*, and its real merits were not generally appreciated. If it had been as well prepared for action as number 1, it would have stood an equal, if not the best, chance for the first premium.

Number 2, or Mr. Wyckoff's plough was in perfect order and by many persons deemed the best in the field.

Number 3, or "*Weaver's* plough" was by no means in proper condition for use. It was rough, and like number 5, with *out* coulter, and *with* the *horn* projecting upwards from the share. This plough has an apparatus under the back end of the beam, where it comes in contact with the handle, for regulating its work. Mr. Weaver, the maker, was not present, and the only gentleman who had used it, and who properly understood the regulation of it, was obliged to leave the exhibition before it had had a proper trial, and therefore its merits were not duly appreciated. We have however great confidence in this plough, and do not doubt but that it will be found, when properly tested, a valuable implement. We have been informed by a gentleman who has given it a fair trial—having *three* of them in use on his own farm, that it is *superior* to any plough he ever held; and we can only again remark that when a person desires to test the merits of a *machine*, or *invention*, he must, if he would succeed, have it in *order* for competition. A plough can no more easily make good work, in a *rough* state, than a horse can make good *time* when taken from the plough to the race course.

Number 4, the "Scotch, or Drysdale, plough," made entirely of *iron*, with handles projecting far behind, found little favor except with those who had been accustomed to its use. It made good work—yet not equal to the others, and was omitted in the Report of the judges.

After noticing in detail the Ploughs, it may be proper to mention those who distinguished themselves as *ploughmen*. The judges of course, were most conspicuous—they all displayed both skill and judgment—yet to *Gerrit Kowenhoven, Esq.*, whom we heard say that he had followed the plough more than *forty years*," we must yield the palm. He was indeed master of the art. There were many others with whom we were unacquainted, who needed no label on their hats to indicate their pursuits—even a casual observer might read, in their manner of handling the implements, their honorable calling. The greater number of those who aspired to, and enjoyed the honor, of "guiding the plough" were unskilled in, or at least for a *long time* unused to, the business. There were those however, of this number who did themselves much credit, and the work justice. The most and persevering industrious, of those present, was the veteran editor of the Commercial Advertiser, with "frock and trowsers"—who, although for many years more familiar with driving the quill than either oxen or mules, displayed to the satisfaction of all, the powerful effects of early impressions, so deeply indeed, are his early agricultural habits seated that even the "aristocratic notions," which he is sometimes *accused* of having imbibed by a residence in New-York, could not keep him from testing every plough on the ground, and ploughing more than any other man present.

After a full and satisfactory trial, in which several acres were "turned up" and many more trodden down by the multitude present, the company adjourned.

The field labors of the day ended, those of the table commenced in due season, at the mansion house, near the lower Williamsburgh ferry—General JAMES TALLMADGE, president of the Institute, presiding, assisted by General Johnson. The fare was substantial, such as farmers are accustomed to, and there was enough of it. The chair having been called upon for a toast, General Tallmadge rose and addressed the company in an appropriate and effective manner, as will appear from the following brief sketch:—

Being called upon for a toast, he would ask the favor to precede it with a few remarks. He wished to express the thanks of the American Institute to the gentlemen and farmers who had given so numerous and respectable attendance this day, on the trial of the plough. It was an essential means and the true source of national wealth and prosperity. The ancients had the *cornucopiæ*, or horn of plenty, as their emblem of wealth, because they had attained only the *pastoral condition*. But we had made farther advance in agriculture, and the *plough*, as the means of agricultural wealth, was adopted by the Institute as the emblem of *plenty*.

He said a slight reference to historical events connected with the plough, and the spot on which we had been assembled—and the incidents associated with the early circumstances of the surrounding country, might be acceptable and somewhat curious. He would therefore state that the first plough which ever turned the American soil, was on the field which had this day been selected for the experiment by the Institute. The incident, after such intermediate events, was worth recollection. The Pilgrims of New-England had come to this country bringing with them little else but life—the love of liberty—and the desire of religious freedom. The Walloons who settled on the field where we are this day assembled, were first provided with the plough and a team—about 1622. The necessity and the early habits of those first settlers, induced them to cultivate their soil for a time with the hoe.

Tobacco was the leading object of cultivation, and the early records show a colonial law compelling, under penalties, persons to plant as many hills of corn as tobacco; and also, as a proof of the early protection and encouragement of domestic industry, giving bounties to "persons who should cross the *Spuytendeyvil*, make clearings and plant corn in the wilderness."

The colonial statute book now shows an act of the Legislature of 1708, giving bounties for killing *wolves* and *wild cats* in Kings county, and on the soil which we have this day been ploughing. But, Mr. T., said, the act was supposed, by some persons, not to extend to the ferocious animals called *shavers* which now infest Wall-street. But its directions to get rid of the "*young cubs*," as the *most mischievous*, were worthy of consideration.

In the same year (1708) an act was passed for the encouragement of *whaling*, off Sandy Hook, by the *Indians*, and privilege for them from arrest, with penalties, on any person who sold them liquor, or got from them any fishing tackle, going to or returning from their whaling voyages.

Mr. T., said the members of the Institute entered into all the sympathies of their fellow citizens under the pressure of the present hard times. Others would explain the causes of the present distress. That was not his purpose. But the Institute could tell the sufferers for want of money, a sure remedy. It was for farmers' boys, of all ages, from sixteen to sixty, to stick a little more to *the plough*. It has a wonderful power of creat-

ing wealth, and a proper and just encouragement and protection of its labor, will do more for the public good than the repeal of the treasury order, or even the friendship of Nic. Biddle.

The declared object of the American Institute was to encourage agriculture, commerce, manufactures, and the arts. It seemed to be a fit occasion to submit a few facts bearing on these great sources of national prosperity.

Free trade objects to the protection of the home laborer of the country, and the manufacturer to be broken down, under the competitton of European labor.

Commentary—One and a half million of bushels of wheat have been imported the last year.

Woolens, about	20 millions
Cottons,	19 "
Silks,	18 "

The Institute says—we should use our own country, and our own labor to produce for our own wants. Before the act, repealing in part the system of protection, the importation of silk was eight millions—The last year it was eighteen millions.

1830, the free articles imported,	$12,700,000
The total importations,	70,000,000
1834, the free articles imported,	68,000,000
Total importations,	126,000,000
1835, the free articles imported,	77,000,000
1836, total importations,	180,000,000

The excess of importations over our exportations, was last year sixty-one millions—a balance of trade against our country, in a single year, nearly equal in amount to the whole metallic circulating medium. This balance is a constant drain of our specie currency—and needs no prophet to tell the causes of our monied distress. It leaves no doubt of the duty of the country to afford a just protection to its labor, and its agricultural and manufacturing productions, till it shall supply its wants, and thus with the exportations, shall be enabled to provide for the balance of trade, while it retains its circulating medium.

In conclusion, General T., begged leave to offer the following toast:

THE BADGE OF THE AMERICAN INSTITUTE.—The plough, the ship, the loom, and the eagle—as the emblems of agriculture, commerce, and manufactures, guided by the arts.

General JOHNSON, the Vice-President, having been called on for a toast, gave a sentiment in Dutch, to the memory of three eminent Walloons who first settled at the Wallabout, but whose names we cannot now repeat, as they were not taken down at the time, which we exceedingly regret, as the remarks and toast of the venerable descendant of the early settlers of the New Netherlands formed one of the most interesting incidents of the occasion—we may possibly give it hereafter.

WILLIAM L. STONE, Esq., having been callce upon by the chair, rose and spoke to the following effect:

MR. PRESIDENT—I rise cheerfully in obedienec to your call, but, in doing so, I must beg you distinctly to understand that, although I ventured to challenge your Honor to compete with me in holding the plough, I shall not have temerity to attempt a competition with such a practised debater in speech making. In guiding the plough, I must persist in maintaining my superiority; in the art of eloquence, I cannot approach you by a fearful distance. There is, however, one point, Mr. President, in which I shall yet take the liberty of going beyond the chair. You have just been edifying and interesting us by some of the fruits of your antiquarian researches. You have not only been shaking the dust from the musty records of our early Dutch history, but have hastily glanced at some of your classic recollections of a yet earlier day. But, sir, before I have done, I intend to outstrip you in travelling backward.

We have met to day, sir, for an important object connected with the husbandry of our country. It happens, moreover, to be a very suitable season for such a festivity. It is a time closely corresponding with one of the great festivals instituted by the Greeks, and commemorated by the Romans, in the honor of Ceres, the fair goddess of corn and harvests, of potatoes and cauliflowers,—of mangel-wurtzel and ruta-baga. There were two festivals sacred to this divinity—the one in harvest time, in commemoration of the abduction of her beautiful daughter Proserpine, by Pluto, and the other at planting time, in memory of the mother's anxious search for her stolen daughter. These celebrations were kept with great spirit; and we are now assembled at the recurrence of the last mentioned festival.

Mr. President, I am somewhat partial to the celebration of festivals, and the indulgence of innocent recreations. I think that in this respect, the ancients were wiser in their generations than we. Relaxation of mind and body are necessary alike to the elasticity of both. We have all become utilitarians, and have not the time to spare for even rational amusements. Still, Mr. President, I cannot but think, that our ancestors who celebrated the appropriate festival of the harvest home—those who danced joyously around the May-pole, and twined the garland for the fair brow of the Queen of May—were, on the whole, a happier people than those of our own time. We are always laborious and care-worn. They had frequent seasons of throwing off their cares, and with light hearts could reinvigorate their constitutions, and reanimate their spirits, by rural sports among flowers, and groves, and fountains.

I have often, Mr. President, been charged with being an aristocrat, and I hope I shall not be treading upon the toes of the democracy, if I confess the charge to be true. I believe I am. Yes: I am in favor of an order of nobility—of which the husbandmen should be the members, and the plough the escutcheon. Sir, the calling of the husbandman is a noble one, and the farmers are the nobles of the earth.—"The sun," said the lofty souled Tecumseh, when asked by the American commissioners to seat himself in their tent, "is my father, and the *earth* is my mother, and I will repose upon her bosom." This was a noble tribute from one who had not yet emerged from the hunter state, in honor of those who draw their sustenance from the bosom of our common mother.

Perhaps, sir, it will be expected that I shall say something specifically on the subject of *ploughs*. But there would not be time to enter at large upon the history of the machine, and the many improvements they have undergone from the day of their invention, down to the fine little red plough that I have just been holding, made by the friend at my right, [Mr. Wyckoff]—for that I take to be, on the whole, the best on the ground. I will, therefore, speak of the first plough-maker—albeit a difficult matter to identify him to a certainty. I think, however, that Adam must have been the inventor. After he had forfeited his proud estate in Paradise—when horticulture and floriculture could no longer be his exclusive pursuits—he was driven forth to till the ground. He then became a farmer. And if he was as sensible and as ingenious a man, as I take him to have been—for he doubtless was a Yankee—he must have invented a plough. He would have been sadly wanting in sagacity and self-respect, if he depended upon the spade—and there were no Irishmen in those days—a circumstance inducing me to believe the spade was unknown. Be that as it may, however, the plough was an early implement in husbandry. It was acknowledged by Xenophon, and its merits were sung by Horace, Pindar and Virgil. There is, however, a hiatus in its history, from the days of Adam to those of TRIPTOLEMUS! This Triptolemus was a noble fellow—worthy in all respects to stand at the head of the order of nobility of which I have been speaking. His birth was illustrious, since, according to the beautiful mythology of the Greeks, he was the son of Oceanus and Terra—of the earth and ocean. Others, however, claim that he was the son of Celsus, King of Attica, by Neæreus, and was born at Eleusis. Hence the sublime Eleusinean mysteries, the nature of which it has puzzled so many of the modern learned to divine. He was doubtless a beautiful child, since he was adopted by Ceres, who took him to nurse at her own breast. She became so attached to him, that she undertook to divest him of all particles of mortality, by causing him to sleep upon beds of live coals—her own supernatural powers of course preserving him from harm. His mother, however, one luckless evening, having discovered that her little one was not lying upon a bed of roses, uttered such a shriek as to dissolve the charm, and prevent him from arriving at absolute purification from earthly matter by the process of fire. But the goddess determined still to do her best for the child, and watched an opportunity for his advancement.

I have already alluded to the rape of Proserpine, and the search of Ceres to find her. Pluto, to prevent being tracked, leaped into his own murky homestead, with his stolen bride, through the fountain of Cyane—and all trace of him would have been lost, but for the circumstance that the poor girl dropped her veil upon the margin. The anxious parent was three years upon the search, and on her return, found the agriculture of the world in a wretched condition. The fields, untilled, had grown up

with thorns and briars. The fences were down—the gates and bars were out of order—the hedges wanted trimming—and the barn doors were off from their hinges. Indeed every thing, in farmer's phrase, "had gone to rack and ruin" during her absence. Finding the husbandry of the world in such a deplorable condition, she cast about for a professor of agriculture, and designated Triptolemus for that important office. She taught him thoroughly in the art of husbandry—from the clearing and fencing, and draining of land, to the mixture of composts; and the more refined principles of husbandry adopted only by those acquainted with the science of agricultural chemistry. She then gave him her own chariot, and sent him, thus provided, and thus qualified, through the world, to resuscitate the great interest under her own peculiar administration.

In his travels through Scythia, Lyncus undertook to slay him—as a punishment for which the offended Goddess changed him into a lynx. He was accompanied in his travels by Bacchus—which shows that he paid some attention to horticulture—that he could twine the grape vine, as well as hoe the pumpkin—and also that he drank good wine if any. His name is derived from two Greek words, signifying *triple ploughing*—thus by his very name inculcating a lesson to farmers to till their lands well. Indeed, Mr. President, thorough and frequent ploughing is one of the most essential characteristics of a good farmer. Pliny recommends ploughing four times, and so do Virgil, Sir John Sinclair and Jesse Buel.

This mission of Triptolemus was most useful, not only to himself, but to the world. Agriculture revived under his judicious instructions—the farmers became rich by producing, instead of buying—and such was their gratitude, that in the end the foster-son of Ceres was called to the throne, and deified at his death. Thus, Mr. President, I have traced the noble origin of husbandry, and gone beyond you in antiquity. Allow me, in conclusion, to congratulate you, and the members of the American Institute, upon their alliance this day with the farming interest. The New-York Agricultural Society is numbered with the dead. So also, I believe, is the New-York Horticultural Society. Cannot, therefore, the American Institute extend its broad ægis, to some extent, over those important interests? I hope something may be done upon this important subject. In the mean time, permit me, Mr. President, to propose as a sentiment—

THE PLOUGH AND THE PRESS.—Essential alike to prevent the sterility of MATTER and of MIND.

By THADEUS B. WAKEMAN.—No repetition of modern free trade policy, importing grain to starve the people.

By ADONIRAM CHANDLER.—*Our Country's Industry*—Whether in ploughing the land or the ocean, whether at the loom, in the field, or in the workshop, it is alike entitled to the protection of a wise and justly administered government.

By S. JENKS SMITH.—Agriculture—the parent of commerce and the foster mother of mechanics.

By FRANCIS INGRAHAM.—The memory of the Ameriaan Farmer, upon whom the cries of the world have been turned in admiration—the farmer of Mount Vernon.

By Col. JESUP.—The farm of General Johnson and the ploughmen of the American Institute—they have this day seen that *Stone* is sometimes found on the best soil.

By Capt. SAMUEL C. REED.—The American plough—May its future *energies* and *industry* create a thorough barrier to the importation of foreign grain or breadstuffs in all time to come.

By Mr. WILLIAMS.—May those who *handle* the plough never get under the *harrow*.

By D. K. MINOR.—THE PLOUGH—Guided by practical knowledge, improved by the Press—through the medium of *agricultural publications*, a sure source of wealth when others fail.

The President of the day having retired, Mr. Stone rose and remarked, that he was about to offer a toast which he doubted not would be universally acceptable. He was about to propose the health of a gentleman with whom he had had the pleasure of an acquaintance for twenty years—a gentleman who was an eloquent and gifted member of the bar—who had adorned the halls of our State and national legislatures—who had presided with dignity in the Senate,—and who had reflected honor upon himself and country during his travels abroad, in most of the great European capitals. He had, moreover, shown himself a staunch friend to the great agricultural and manufacturing interests of the country. He begged leave, therefore, to propose—

"The health of the President of the American Institute, General JAMES TALLMADGE."

The toast was received and drunk with great enthusiasm.

A number of additional toasts and sentiments were given, and two or three speeches made, which have not been preserved. The festival was ended at "milking time," and the company from the city returned, just after the ruddy sun had sunk into a molten bed of amethyst and gold.

From the New-York Farmer.

DOMESTIC ECONOMY.

HANG OR DRIED BEEF.—Take eight ounces of common salt, two ounces of saltpetre, made into brine. This quantity to be applied to ten lbs. of Beef. It should lay in the brine four weeks; and then be hung up in the kitchen or some warm apartment to become dry. In order to preserve it from insects in summer, it should be tied up in a linen cloth.

The above receipt was given me by an excellent farmer and manager in Massachusetts; and the beef *cured by it* was of the finest description. H. C.

SALT OR CORNED BEEF.—One peck of coarse salt, four ounces of saltpetre, one and a half pound of coarse brown sugar. Add to the above ingredients, four gallons of spring water; boil and skim it until it is quite clear; when cold it is fit for use. The meat, either beef or pork, should be salted a few hours before it is put in the pickle. Hams and Tongues are very fine cured with the same pickle.

The above receipt is called Admiral Pococke's pickle, and is much approved and generally used in the British Navy. I have successfully tested its value. H. C.

HOUSEHOLD SOAP.—Put fourteen lbs. of Potashes to twenty lbs. of good grease for one barrel. Put the potashes into two pails of water over night; put the grease into a kettle and pour the potashes over it; let it boil moderately, filling it up with cold water until it thickens; then put it into the barrel, and fill it up, (a pail full at a time) stirring it about until the barrel is full.

LIST OF SUBSCRIBERS to the **Railroad Journal.** that have paid, (CONTINUED.)

Mr. A. R. Lawrence, city New-York; 1st January, 1838

Chersant French, Consul, Philadelphia, Pa. 1st Jan. 1838

John Snowdon, Jr. Brownstown, Pa. 1st Jan. 1838

G. S. Greene, Warwick, R. I. 1st January 1838

L. Wernwag, Harpers Ferry, Va. 1st Jan. 1837.

C. W. G. Williams, Greenville, S. C. 1st Jan. 1839

Tomilson Fort, Milledgeville, Geo. 10th April, 1837

W. H. Belcher, St. Louis, Mo. 1st Jan. 1838

PHILADELPHIA STOCK MARKET.
April 29th

	Price of shares	Offered	Asked
RAILROAD STOCKS			
New-Castle and Frenchtown	25	29¼	30¼
Do loan, 5½ per cent	100	99	101
Wilmington and Susquehanna	50	33	36
Camden and Amboy, shares,	100	129	130
Do loan, 6's 1836	100	110	120
Danville and P. shares	50	25	35
Norristown, do	50	20	22
Do 6 per cent loan	100	85	100
Valley Railroad	7½	1	3
Westchester do	50	20	28
Minehill do	50	57	59
N. L. and Penn. Tp. do	40	34½	35
Philadelphia and Trenton do	100	117	119½
West Philadelphia Railroad	50	20	30
Harrisburg and Lancaster	50	46	48
Cumberland	25	15	20
Beaver Meadow	50	50	54
MISCELLANEOUS STOCKS			
North American Coal Company	25	12	14
Steam Bt. Sts. Columbian	100	18	22
Exchange Stock	100	70	80
Arcade	100	55	75
Theatres—Chestnut street	600	625	675
———Walnut street	280	175	220
———Arch street	500	325	375
Gas Company	100	95	100
CANAL STOCKS			
Schuylkill Navigation, shares	50	156	155
Do loans, 5 1845	100	98	100
Do do 1855	100	100	101
Do do 5½ 1837	100	98	100
Lehigh Coal and Navigation	50	76	78
Do loan, 6 1833	100	97	98
Do do 6 1839	100	97	98
Do do 6 1844	100	99	100
Do do 5 1840	100	96	97½
Union Canal, shares	200	180	190
Do loan, 1836	100	83	86
Do do 1840	100	85	90

Cheap'k & Delaware Canal, shares	200	20	40
Do loan, 1837	100	60	67
Do do 1840	100	60	67
Delaware and Hudson,	100	62	63
Do loan	100	95	100
Louisville and Portland	100	100	110
Convertible 6 per cent. loans,	100	100	110
Sandy and Bever	100	60	80
Morris Canal	100	66	69

Advertisements.

TO CONTRACTORS.

JAMES RIVER AND KANAWHA CANAL.

THERE is still a large amount of mechanical work to let on the line of the James River and Kanawha Improvement, consisting of twenty locks, about one hundred culverts and several large aqueducts, which will be offered to responsible contractors at fair prices.

The locks and aqueducts are to be built of cut stone.

The work contracted for must be finished by the 1st day of July, 1838.

Persons desirous of obtaining work are requested to apply at the office of the undersigned, in the city of Richmond, before the fifteenth of May, or between the fifth and the fifteenth of July.

CHARLES ELLET, Jr.
Chief Engineer Jas. Riv. & Ka. Co.

P. S—The valley of James River above Richmond is healthy.

16—10t

PATENT RAILROAD, SHIP AND BOAT SPIKES.

*** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation, and now almost universal use in the United States, (as well as England, where the subscriber obtained a patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

*** All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.
Troy, N. Y., July, 1831.

*** Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 222 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. (1J23am) H. BURDEN.

NOTICE TO CONTRACTORS. WESTERN RAILROAD.

PROPOSALS will be received at the office of the Western Railroad Corporation, in Springfield, until the 10th May, for the grading and masonry of the second and third divisions of the road, extending from East Brookfield to Connecticut river, at Springfield—a distance of 35 miles.

Plans, Profiles, &c. will be ready for examination after the first of May.

W. H. SWIFT,
Resident Engineer.

Worcester, Mass., April 1, 1837. 14-6t

AMES' CELEBRATED SHOVELS, SPADES, &c.

300 dozens Ames' superior back-strap Shovels
150 do do do plain do
150 do do do caststeel Shovels & Spades
150 do do Gold-mining Shovels
100 do do plated Spades
50 do do socket Shovels and Spades.

Together with Pick Axes, Churn Drills, and Crow Bars (steel pointed,) manufactured from Salisbury refined iron—for sale by the manufacturing agents,

WITHERELL, AMES & CO.
No. 2 Liberty street, New-York.
BACKUS, AMES & CO.
No. 8 State street, Albany

N. B—Also furnished to order, Shapes of every description, made from Salsbury refined Iron v4—tf

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlaem Railroad now in operation J25tf

FRAME BRIDGES.

THE undersigned, General Agent of Col. S. H. LONG, to build Bridges, or vend the right to others to build, on his Patent Plan, would respectfully inform Railroad and Bridge Corporations, that he is prepared to make contracts to build, and furnish all materials for superstructures of the kind, in any part of the United States, (Maryland excepted.)

Bridges on the above plan are to be seen at the following localities, viz. On the main road leading from Baltimore to Washington, two miles from the former place. Across the Metawamkeag river on the Military road, in Maine. On the national road in Illinois, at sundry points. On the Baltimore and Susquehanna Rrailroad at three points. On the Hudson and Patterson Railroad, in two places. On the Boston and Worcester Railroad, at several points. On the Boston and Providence Railroad, at sundry points. Across the Contoocook river at Henniker, N H. Across the Souhegan river, at Milford, N. H. Across the Connecticut river, at Haverhill, N. H. Across the Contoocook river, at Hancock, N. H. Across the Androscoggin river, at Turner Centre, Maine. Across the Kennebec river, at Waterville, Maine. Across the Genesse river, at Squakiehill, Mount Morris, New-York. Across the White River, at Hartford Vt. Across the Connecticut River, at Lebanon, N. H. Across the mouth of the Broken Straw Creek, Penn. Across the mouth of the Cataraugus Creek, N. Y. A Railroad Bridge diagonally across the Erie, Canal, in the City of Rochester, N. Y. A Railroad Bridge at Upper Still Water, Orono, Maine. This Bridge is 500 feet in length; one of the spans is over 200 feet. It is probably the FIRMEST WOODEN BRIDGE ever built in America.

Notwithstanding his present engagements to build between twenty and thirty Railroad Bridges, and several common bridges, several of which are now in progress of construction, the subscriber will promptly attend to business of the kind to much greater extent and on liberal terms. MOSES LONG.

Rohester, Jan. 13th, 1837. 4—y

ARCHIMEDES WORKS.

(100 North Moor street, N. Y.)
NEW-YORK, February 12th, 1836.

THE undersigned begs leave to inform the proprietors of Railroads that they are prepared to furnish all kinds of Machinery for Railroads, Locomotive Engines of any size, Car Wheels, such as are now in successful operation on the Camden and Amboy Railroad; none of which have failed—Castings of all kinds; Wheels, Axles, and Boxes, furnished at shortest notice.

4—vtf H. R. DUNHAM & CO.

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WE the subscribers having formed a co-partnership under the style and firm of Folger & Coleman, for the manufacturing and selling of Ropes for inclined planes of railroads, and for other uses, offer to supply ropes for inclined planes, of any length required without splice, at short notice, the manufacturing of cordage, heretofore carried on by S. S. Durfee & Co., will be done by the new firm, the same superintendant and machinery are employed by the new firm that were employed by S. S. Durfee & Co. All orders will be promptly attended to, and ropes will be shipped to any port in the United States.

12th month, 12th, 1836. Hudson, Columbia County State of New-York.

ROBT. C. FOLGER,
33—tf. GEORGE COLEMAN,

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